Predatory publishing solicitation: a review of a single surgeon's inbox and implications for information technology resources at an organizational level

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Summary

Over a 6-month period, roughly one-third of emails received in a single surgeon's email inbox were predatory in nature (i.e., soliciting material for nonexistent journals or conferences). While existing databases (e.g., Beall's list and The CalTech Library list of questionable conferences) catalogue many fraudulent senders, the list is ever-expanding. The overall cost to health care organizations in terms of wasted bandwidth and financial diversion is extensive, as is confusion for trainees and colleagues. For the sake of fiscal responsibility and the maintenance of scholarly standards, it is incumbent upon organizational information technology departments to continually refine strategies to reduce this adverse impact.

Predatory publishing or "phishing" emails purport to invite scholarly activity, but in truth actually seek to collect publishing or registration fees.[1] Senders from these "journals" and/or "conferences" attempt to disguise their intent and platforms. Despite claims to the contrary, predatory journals do not provide peer review or editorial services — essential steps in validating research methodology and manuscript content — nor do they offer transparent policies or processes regarding fees, long-term archiving and/or the management of potential conflicts of interest.[2] The challenges incumbent in the academic, peer-reviewed literature associated with predatory journals have now become so substantial that this was the lone topic at the most recent meeting of the Surgery Journal Editors Group (SJEG).[3] Although the SJEG does not have any overriding policing authority, it is an engaged group of editors from the most prominent peer-reviewed surgical journals in the world, who determine and evaluate surgical publication policy and requirements. Furthermore, our surgical trainees, research assistants and nursing collaborators are also finding it increasingly difficult to navigate the extensive web of deceitful possibilities and invitations. In the event that these journals do actually publish, the lack of adequate peer review dilutes the quality of evidence within the literature.[4]

Case study of a single surgeon's email inbox

All emails received by an academic surgeon at his hospital-provided email account over a 6-month period were evaluated by 2 reviewers (M.M. and D.N.). Characteristics recorded included the site of origin, presence of grammatical errors, contact information provided, relevance of the invitation to the recipient's specialty, as well as whether the sender had already been identified as fraudulent by either Beall's list of potential predatory journals and publishers (beallslist.net) or the

CalTech Library list of questionable conferences (https://libguides.caltech.edu/c.php?g=512665&p=3503029).

A total of 1905 emails were received within the observation period. Of these, 608 were identified as likely to be fraudulent phishing emails and were found to consist of invitations to submit a manuscript (46.9%), present at a conference (34.7%), attend a conference (9.2%), join an editorial board (4.1%), both submit a manuscript and join an editorial board (4.1%), contribute to an eBook (0.7%), or review a manuscript (0.3%). Almost all of the predatory email invitations originated from either fake journals (55.1%) or conference hosts (43.9%).

Phishing emails seeking manuscript submissions originated from 43 different fake publishers with 146 different journal titles (Table 1) or 8 fake stand-alone journals (Table 2). The majority of fake publishers were already included on Beall's list (86.7%). Characteristics associated with emails suspected of being predatory included the presence of obvious spelling and/or grammar errors (90.2%), a salutation including the word "greetings" (60.4%; e.g., "Greetings of the day," "Greetings from…," "Warm greetings…"), an offer to submit a broad range of document/article categories (53.3%; e.g., including research or review articles, case reports, editorials, clinical images, letters to editors), and/or the use of excessively flattering language (46.7%; Table 3).

Table 1 (part 1 of 3). Summary of phishing emails from predatory publishers seeking manuscript submissions

Publisher	No. (%) of emails received, *n* =285	Present on Beall's list	Journal titles used by predatory publisher
Open Access Text	42 (14.7)	Yes	• Neurology and Neuroscience Reports • Journal of Case Reports in Medicine—Trends in Transplantatio • Trends in Medicine Journal • Clinical Research and Trials • Global Surgery • Rheumatology and Orthopedic Medicine • Journal of Clinical and Molecular Medicine • Surgery and Rehabilitation Journal • Journal of Trauma and Emergency Care • Clinical and Medical Pediatrics Journal • Trends in General Practice • Physical Medicine and Rehabilitation • Clinical Microbiology and Infectious Diseases • Journal of Translational Science • Biology, Engineering and Medicine Journal • Journal of Clinical Investigation and Studies • Biomedical Research and Clinical Practice • Preventice Medicine and Community Health • Trauma and Emergency Care Journal • Cardiothoracic and Vascular Sciences • Journal of Allergy and Immunology • Journal of Translational Science • Research and Review Insights
OMICS Publishing Group	19 (6.7)	Yes	• United Journal of Physical Medicine and Rehabilitation • Journal of Pharmaceutical Regulatory Affairs: Open Access • Cardiac and Pulmonary Rehabilitation • Journal of Forensic Medicine • International Journal of Physical Medicine and Rehabilitation • Journal of Clinical and Experimental Transplantation • Journal of Clinical Microbiology and Antimicrobials • Occupational Medicine and Health Affairs • Anthropology Journal • Journal of Phylogenetics and Evolutionary Biology • Journal of Neuroinfectious Diseases • Reconstructive Surgery and Anaplastology
Remedy Publications	18 (6.3)	Yes	• Annals of Medical and Medicine Research • Journal of Surgical Techniques and Procedures • Family Medicine: Clinical Investigations and Experimental Medicine • Annals of Plastic and Reconstructive Surgery • Clinical Case Reports International • Journal of Cytology and Pathology • Journal of Dermatology and Plastic Surgery • Plastic & Reconstructive Surgery Journal

Table 1 (part 2 of 3). Summary of phishing emails from predatory publishers seeking manuscript submissions

Publisher	No. (%) of emails received, *n* =285	Present on Beall's list	Journal titles used by predatory publisher
Austin Publishing Group	17 (6.0)	Yes	• Annals of Surgery and Perioperative Care • Physical Medicine and Rehabilitation • Austin Journal of Clinical Trials: Open Access • Austin Hypertension • Austin Physical Medicine • Austin Journal of Women's Health • Austin Journal of Clinical Pathology • Journal of Surgery
Gavin Publishers	14 (4.9)	Yes	• Archives on Veterinary Science and technology • Sports Injuries & Medicine • Archives of Surgery and Clinical Case Reports • Journal of Drug design, Delivery and Safety • Applied Clinical Pharmacology and Toxicology • International Journal of Critical Care and Resuscitation • Current Trends in Clinical Trials
Peertechz	11 (3.9)	Yes	• International Journal of Oral and Craniofacial Science • International Journal of Veterinary Science and Research • Open Journal of Trauma • Journal of Medicinal Chemistry and Research • Internation Journal of Dermatology and Clinical Research • Journal of Novel Physiotherapy and Rehabilitation • International Journal of Immunotherapy and Cancer Research • Journal of Clinical Pharmacology and Clinical Pharmacokinetics
ClinMed International Library	9 (3.2)	Yes	• International Journal of Pediatric Research • International Journal of Physiatry • International Archives of Substance Abuse and Rehabilitation • International Journal of Cognition and Behaviour • Anesthesiology Case Reports • International Journal of Physical Medicine and Rehabilitation
Allied Academies	7 (2.5)	Yes	• Case Reports in Surgery and Invasive Procedures • Timely Topics in Clinical Immunology • Journal of Veterinary Medicine • Journal of Plant Biotechnology and Microbiology • Timely Topics in Clinical and Vaccine Research • Biology and Medicine Case ReportsClinical Trials and Vaccine Research
SCIAEON	7 (2.5)	Yes	• Veterinary Sciences and Medicine • Journal of Pediatric Research and Child Health
SM Online Publishers	7 (2.5)	Yes	• Annals of Burns and Trauma • Journal of Surgical Oncology and Clinical Research • SM Physical Medicine & Rehabilitation
Global Science Library Publishers	6 (2.1)	No	• Journal of Clinical Case reports and reviews • Journal of Pediatrics • GSL Journal of Pediatrics • GSL International Journal of Surgery Open • GSL Journal of Clinical Research and Case Reports Access • GSL Journal of Clinical Case Reports and Reviews • Internation Journal of Surgery
Insight Medical Publishing	6 (2.1)	Yes	• Pediatric Infectious Diseases: Open Access • Journal of Neurodegenerative Diseases and Disorders • Journal of Zoonotic Diseases and Public Health • Journal of Clinical Medicine and Therapeutics • Journal of Clinical and Molecular Endocrinology
KEI Journals	4 (1.4)	Yes	• Medical Research Archives
Pulsus Group	4 (1.4)	Yes	• Journal of Surgery: Case Reports • Surgery: Case Report • Journal of Addiction and Clinical Research • Pulsus Journal of Surgical Research
Science Publishing Group	4 (1.4)	Yes	• SPG Open • SPG Biomed

Table 1 (part 3 of 3). Summary of phishing emails from predatory publishers seeking manuscript submissions

Publisher	No. (%) of emails received, *n* =285	Present on Beall's list	Journal titles used by predatory publisher
Scientific Literature	4 (1.4)	Yes	• Physical Medicine and Rehabilitation • Clinical Dermatology: Research and Therapy
SciRes Literature	4 (1.4)	Yes	• American Journal of Burns and Trauma • Open Journal of Surgery
SciTechnol	4 (1.4)	Yes	• Clinical Dermatology Research Journal • Archives on Clinical Pathology • Journal of Plastic Surgery and Cosmetology • Journal of Clinical Nutrition and Metabolism
Somato Publications	4 (1.4)	No	• Journal of Dermatology and Cosmetic Surgery
Crimson Publishers	3 (1.1)	Yes	• Advancements in Bioequivalence & Bioavailability • Examines in Physical Medicine & Rehabilitation • Orthoplastic Surgery & Orthopedic Care International Journal
Herald Scholarly Open Access	3 (1.1)	Yes	• Journal of Otolaryngology, Head & Neck Surgery • Journal of Brain and Neuroscience Research • Journal of Clinical Dermatology and Therapy
MedCrave	3 (1.1)	Yes	• Journal of Pediatrics and Neonatal Care • Journal of Psychology & Clinical Psychiatry • Journal of International Physical Medicine & Rehabilitation
Symbiosis Online Publishing	3 (1.1)	Yes	• SOJ Surgery • international Journal of Open Access Ophthalmology • International Journal of Open Access Clinical Trials
Bioaccent Publishing	2 (0.7)	Yes	• BAOJ Bioinformatics
Chronicle Publishers	2 (0.7)	No	• Chronicle Journal of Epidemiology and Preventive Medicine • Journal of Clinical Case Reports and Reviews
Gratis Open Access Publishing	2 (0.7)	Yes	• Integrative Pediatrics and Child Care
Heighten Science Publications	2 (0.7)	Yes	• Journal of Novel Physiotherapy and Rehabilitation • Journal of Advanced Pediatrics and Child Health
Longdom Publishing	2 (0.7)	Yes	• Journal of Reconstructive Surgery and Anaplastology • Journal of Clinical and Experimental Pharmacology
Madridge Publishers	2 (0.7)	Yes	• Madridge Journal of Surgery
Research Open	2 (0.7)	Yes	• Integrative Journal of Veterinary Biosciences
Scholarly Pages	2 (0.7)	Yes	• Clinical Pediatrics and Research Journal • Journals of Scholarly Pages
Science Repository	2 (0.7)	Yes	• Surgical Case Reports
Annex Publishers	1 (0.4)	Yes	• Journal of Physical Medicine and Rehabilitation Studies
Avens Publishing Group	1 (0.4)	Yes	• Journal of Clinical Trials and Patenting
Bibliotics Journals	1 (0.4)	No	• Journal of Orthopaedics Spine and Sports Medicine
Boffin Access	1 (0.4)	Yes	• International Journal of Veterinary and Animal Medicine
Edorium Journals	1 (0.4)	No	• Edorium Journals
JSciMed Central	1 (0.4)	Yes	• Annals of Sports Medicine and Research
Juniper Publishers	1 (0.4)	Yes	• Modern Applications of Bioequivalence & Bioavailability
Meddocs Online	1 (0.4)	No	• Journal of Abdominal Wall Reconstruction
Ommega Publishers	1 (0.4)	Yes	• Journal of Pediatrics and Palliative Care
Onjourn Publishers	1 (0.4)	Yes	• Case Reports and Literature Review Journal
ScholArena	1 (0.4)	Yes	• Journal of Veterinary and Animal Reseacrh
Scimaze Publishers	1 (0.4)	Yes	• Scimaze Pediatrics
Scitechz	1 (0.4)	Yes	• Annals of Clinical and Medical Case Reports

The majority of the predatory conference invitations (97.4%) originated from 14 unique fake hosts, of which more than half (57.1%) were present on CalTech Library's list of questionable conferences (Table 4). In the absence of a comprehensive list of fake conference hosts to rely on, characteristics such as the presence of spelling and/or grammar errors (73.0%), use of the word "greetings" (41.2%), appealing words in the conference title giving it an international appearance (74.9%; e.g., global, world, euro), and the use of excessively flattering language (42.7%) are often helpful (Table 5).

Nearly all publishers and stand-alone journals (91.9%), as well as the majority of conference hosts

Table 2. Summary of phishing emails from predatory stand-alone journals seeking manuscript submissions

Jounal	No. (%) of emails received, *n* =285	Present on Beall's list
Clinics in Surgery	28 (9.8)	Yes
World Journal of Surgery and Surgical Research	10 (3.5)	No
Accura Science	6 (2.1)	No
United Journal of Physical Medicine and Rehabilitation	3 (1.1)	No
Annals of Clinical Case Reports	1 (0.4)	Yes
International Journal of Animal Science	1 (0.4)	No
International Journal of Critical Care and Trauma	1 (0.4)	No
Journal Surgery Research and Reports	1 (0.4)	No

Table 3. Characteristics of phishing emails seeking manuscript submissions

Characteristic	No. (%) of emails received, *n* =285
Email origin	
Sent from free provider (e.g., gmail.com)	9 (3.2)
Purported country of origin	
None mentioned	139 (48.8)
USA	120 (42.1)
UK	18 (6.3)
Italy	4 (1.4)
Greece	1 (0.4)
Japan	1 (0.4)
South Korea	1 (0.4)
Switzerland	1 (0.4)
Email salutation	
Addressed by name	226 (79.3)
Generic	49 (17.2)
Absent	7 (2.5)
Addressed to wrong name	3 (1.1)
"Greetings…"	172 (60.4)
Journal characteristics	
Impact Factor cited	28 (9.8)
ISSN number cited	48 (16.8)
Claim to offer editorial services and/or a peer review process	108 (37.9)
Claim to be open access	78 (27.4)
Claim to offer short publication time	44 (15.4)
Broad range of documents accepted (e.g., research, review, case report, editorial, clinical image, letter to editor)	152 (53.3)
Discounted publication fee mentioned	49 (17.2)
Publisher/standalone journal online presence	
Organization has a website	262 (91.9)
Organization is verifiable online (i.e., listed on PubMed	0 (0)
External links provided within the email	157 (55.1)
An "unsubscribe" mechanism is available	133 (46.7)
Disclaimer present at the end of the email	53 (18.6)
Email language	
Presence of spelling or grammar errors	258 (90.5)
Use of flattery	133 (46.7)
Deadline to respond is given	153 (53.7)
Use of appealing words to make the journal appear international (e.g., global, world, euro)	48 (16.8)
Email contact information	
Phone number	107 (37.5)
Street address	109 (38.2)
Email Relevance to surgeon's discipline	
Previous publications by the recipient are cited in the invitation	24 (8.4)
Invitation is related to surgeon's specialty	84 (29.5)

(71.2%) identified as potentially predatory in nature were associated with a website; therefore, online verification is not a reliable way of determining the legitimacy of a phishing email.

Discussion

Receiving an email invitation to submit a manuscript should raise a red flag, given that most legitimate journals and publishers rarely solicit manuscript submissions. Based on our review, we suggest authenticating these emails by looking for characteristics indicative of a predatory email, including spelling and grammar errors, overly formal or stilted salutations, and a broad range of welcomed submission types (original articles, review articles, case reports, editorials, clinical images, letters to editors), and by consulting Beall's list to look for the publisher or journal name.

Our institution's information technology (IT) department estimates that on a monthly basis, an average of 21 million out of 31 million emails to 120 000 distinct users are blocked by firewalls (Alberta Health Services employee website, 2019 Nov. 28). Our data also suggest that of the 10 million emails that penetrate these firewalls, potentially one-third are phishing emails. This clearly highlights the need for improvement to firewall/sequestration practices. For an organization of 100 000 users, earning an average of $100 000 per year, and receiving 6 spam emails a day, the cost in terms of storage, management, downtime, and lost productivity has been estimated to be greater than $16 million per

Table 4. Sumary of predatory conference invitations sent from fake hosts

Conference hosts	No. (%) of emails received, *n* = 267	Present in CalTech Library listing
Conference Series LLC Ltd	128 (47.9)	Yes
BioEvents	27 (10.1)	No
EuroSciCon	21 (7.9)	Yes
PULSUS Group	20 (7.5)	Yes
Allied Academies	17 (6.4)	Yes
Scientific Federation	14 (5.2)	Yes
WONCA	12 (4.5)	No
Meetings International Pte Ltd	6 (2.2)	Yes
WSP	6 (2.2)	No
BioGenesis	1 (0.4)	No
BIT Congress Inc	1 (0.4)	Yes
OMICS International	1 (0.4)	Yes
Pharma Professionals	1 (0.4)	No
Scientific Overseas Group Conferences	1 (0.4)	No
Unable to determine conference provider	7 (2.6)	N/A

Table 5 (part 1 of 2). Characteristics of predatory conference invitations

Parameters	No. (%) of emails received, *n* = 267
Email origin	
Email sent from a free provider like gmail.com	3 (1.1)
Purported country of origin	
UK	124 (46.4)
None mentioned	114 (42.7)
India	7 (2.6)
Singapore	7 (2.6)
Italy	6 (2.2)
USA	6 (2.2)
Canada	1 (0.4)
China	1 (0.4)
Luxembourg	1 (0.4)
Purported country of conference location	
UK	31 (11.6)
USA	25 (7.9)
Spain	21 (7.9)
None mentioned	20 (7.5)
Japan	20 (7.5)
Italy	19 (7.1)
South Korea	12 (4.5)
United Arab Emirates	11 (4.1)
Russia	10 (3.7)
Singapore	10 (3.7)
Australia	8 (3.0)
Austria	8 (3.0)
Canada	8 (3.0)
Thailand	8 (3.0)
Czech Republic	7 (2.6)
Germany	6 (2.2)
Malaysia	6 (2.2)
Scotland	5 (1.9)
China	4 (1.5)
Ireland	4 (1.5)
Switzerland	4 (1.5)
France	3 (1.1)
The Netherlands	3 (1.1)
Norway	3 (1.1)
Hungary	2 (0.7)
New Zealand	2 (0.7)
Portugal	2 (0.7)
Denmark	1 (0.4)
Greece	1 (0.4)
India	1 (0.4)
Turkey	1 (0.4)
Sweden	1 (0.4)
Email salutation	
Addressed by name	74 (27.7)
Generic	123 (46.1)
Absent	45 (16.9)
Addressed to wrong name	24 (9.0)
"Greetings…"	110 (41.2)
Conference host online presence	
Organization has a website	190 (71.2)
External links provided within the email	256 (95.9)

Table 5 (part 2 of 2). Characteristics of predatory conference invitations

Parameters	No. (%) of emails received, $n = 267$
An "unsubscribe" mechanism is available	231 (86.5)
Disclaimer present at the end of the email	91 (34.1)
Email language	
Presence of spelling or grammar errors	195 (73.0)
Use of flattery	114 (42.7)
A conference date is provided	224 (84.0)
Use of appealing words to make the conference appear international (e.g., global, world, euro)	200 (74.9)
Email relevance to surgeon's specialty	
Previous publications by the recipient are cited in the invitation	3 (1.1)
Invitation is related to surgeon's specialty	5 (1.4)

year.[5] Our study also identified the types of words firewalls could flag to block predatory emails. They included the names of journals and publishers listed on Beall's list; the names of conference hosts listed on the CalTech Library list; the names of journals, publishers and conference hosts we deemed to be predatory; the word "greetings"; and the presence of obvious spelling and/or grammar errors.

Conclusion

In our experience, unsolicited emails mostly consisted of invitations from predatory publishers with associated (or stand-alone) journals seeking manuscript submissions. Emails from predatory conference hosts inviting recipients to attend or present at a fake conference are also frequent. The costs associated with this type of spam in large organizations can be in the millions of dollars. These emails shared common characteristics which, together with PubMed's indexed list, as well as both Beall's list and the CalTech Library list, can be used by recipients to distinguish between legitimate and predatory invitations.

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References

1. Shamseer L, Moher D, Maduekwe O et al. Potential predatory and legitimate biomedical journals: can you tell the difference? A cross-sectional comparison. *BMC Med* 2017;15:28.
2. Sharma H, Verma S. Predatory journals: the rise of worthless biomedical science. *J Postgrad Med* 2018;64:226-31.
3. Surgery Journal Editors Group. Consensus statement on the adoption of the COPE guidelines. *Am J Surg* 2010;200:1-2.
4. Franco EL. The downside of the shifting paradigm of scholarly publishing in the biomedical sciences: predatory publishing. *J Obstet Gynaecol Can* 2017;39:513-5.
5. Spam cost calculator. Edmonton (Alta.): SpyderMail. Available: https://www.spydermail.com/spam-cost-calculator/ (accessed 2019 Dec. 12).